
Hawaii Poison Center Forty Years of Saving Lives and Health Costs

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The Hawaii Poison Center was established because poisoning was a significant public health problem in the 1950s. The history and status of the Center, in the context of national trends and key issues in poison control public health infrastructure, is reviewed.

Introduction

Forty five years ago, when the first poison control center opened in Chicago, poisonings were a leading cause of injury in children.¹ The success of early centers in saving lives by providing physicians with immediate and accurate information initially fueled a rapid expansion of poison control centers (PCCs) across the US. Later, as efforts to improve quality led to regionalization, poison control centers consolidated while expanding their geographic catchment areas to millions of people.²

Unintentional poisoning among children today continues to be a significant public health problem. Although the number of pediatric deaths has declined dramatically since the passage of the Poison Prevention Packaging Act of 1970³, the majority of poisonings continue to be in children under 5 years and still occur in sizable numbers—nationally 53% of the 2.2 million poison exposures reported in 1996.⁴

Poison centers today are in a critical financial condition. Generally funded via a patchwork of state and country government funds, hospitals, medical schools, and private donations, poison centers have faced a decline in funding due to various budget cuts. Closings and consolidations have resulted in a decline in poison centers to 87 in 1994.³

The Hawaii Poison Center, established in 1957 by the physician community in response to child poisonings, reflects mainland trends on poison control. The history of poison control on the mainland and in Hawaii is traced in this article and significant issues for the future of poison control in Hawaii are identified.

Methods

A literature review of various medical journal articles, congressional hearing reports, special studies and correspondence from the American Association of Poison Control Centers was conducted. Key informants were identified through inquiries of members of the Hawaii Chapter of the American Academy of Pediatrics and review of the Hawaii Poison Center's business documents. These individuals were contacted for phone interviews on the history of the center and poison control management in Hawaii.

History

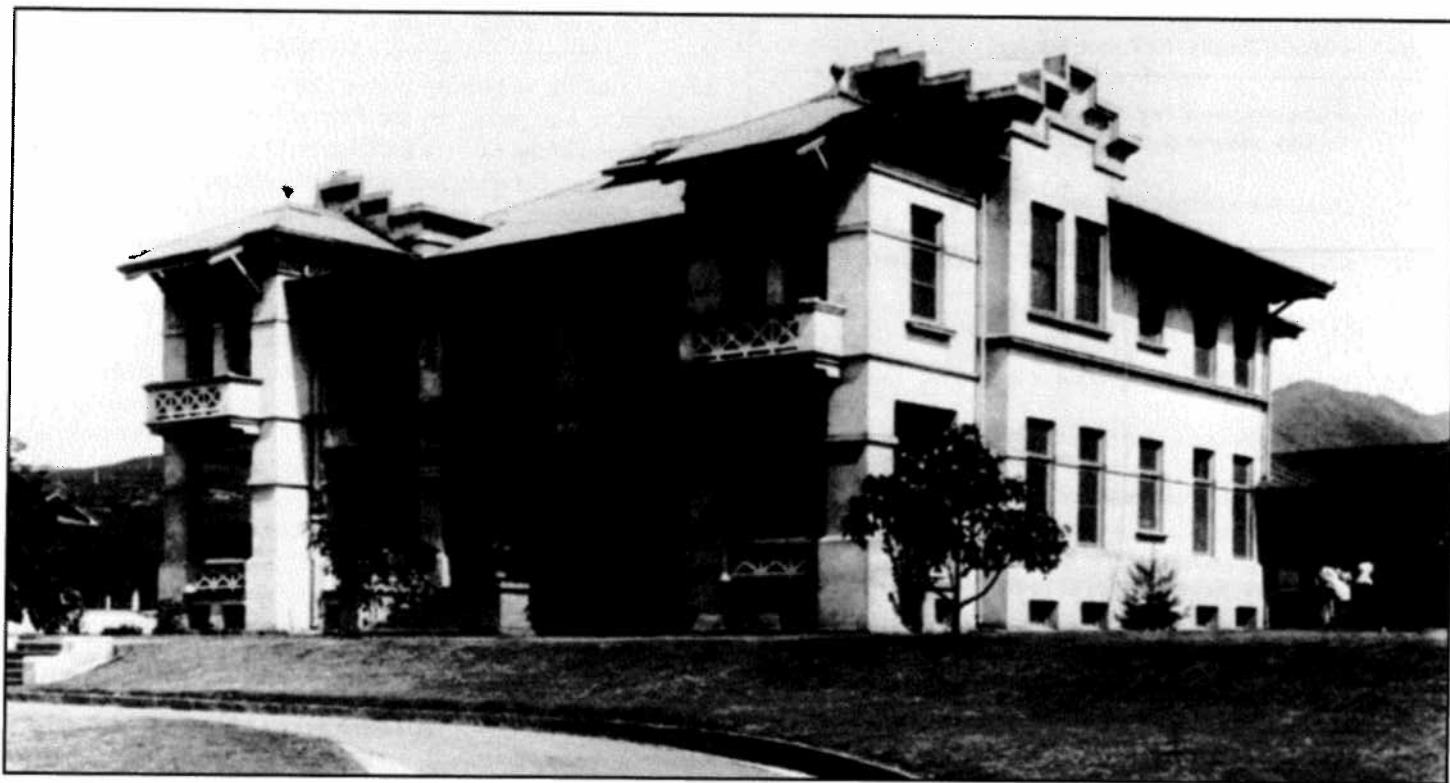
In 1951, Honolulu pediatrician L.T. Chun published an article in the *Hawaii Medical Journal* and *Interisland Nurses' Bulletin* entitled, "Accidental Poisoning in Children/With Special Reference to Kerosene Poisoning." Two hundred and twenty-one pediatric cases admitted to Kapiolani Children's Hospital over a five-year period from August 1945 to May 1950 were reviewed, and of the 59 poison agents noted, kerosene was the most common poison. Three deaths were reported: one each by kerosene, water color paint, and oil of eucalyptus.⁵

The study reflected a significant public health problem — accidental poisonings —both in Hawaii and nationally. In 1950, when the American Academy of Pediatrics Committee on Accident Prevention was formed, poisoning was a leading cause of injury in children. In 1952, the Academy conducted a survey revealing that 51% of reported child accidents were related to poisonings.⁶ Shortly thereafter in 1953, the first poison control center opened its lines in Chicago, offering speedy and lifesaving access to toxicology information in cases of exposure. Center openings in several other cities around the country soon followed. In 1956, the National Clearinghouse for Poison Control Centers was established under the auspices of the US Public Health Service's Accident Prevention Program, serving as a collection agency for information on poisons and potential poisons and compiling data from individual poisoning reports.⁶

The Hawaii Poison Center was established in 1957. The Honolulu Pediatric Society, then a small organization of some 20 or so pediatricians, advocated for poison control as a key child health issue in Hawaii. (Phone interview, L.T. Chun, MD, 9/30/97.) Dr

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The Hawaii Poison Center was established in 1957 at Kauaikeolani Children's Hospital

Donald Char, pediatrician and full time Director of Medical Education for Kauaikeolani Children's Hospital, garnered support from Dr Kay Edgar, Chief of Maternal and Child Health at the State Department of Health, and other stakeholders. Regarding management of poisonings as integral to the training of pediatricians, Dr Char organized the Poison Control Center, as it was then known, under the Department of Medical Education as a service to physicians and other medical professionals. (Phone interview, Donald Char MD, 11/13/97.) With limited funds he brought together toxicology reference materials and trained the pediatric residents who then became responsible for answering the phone line 24 hours a day. The residents relied on textbooks and publications on product dangers, and in the first year fielded 286 phone calls. (Hawaii Poison Center 1984 Annual Report.) Mr. Will Henderson, Kauaikeolani Children's Hospital administrator at the time, commandeered a large closet adjacent to the emergency room and installed a phone line and furniture, giving the center an identity and visibility. (Interview, Will Henderson, 10/19/97.)

Pediatrician Richard Ho, who became involved with the Poison Center as a resident, subsequently became its first medical director. Majoring in chemistry before going on to medical school, Ho began to build up the technical reference library, wrote articles periodically for the *Hawaii Medical Journal*, and tirelessly carried his poison prevention educational efforts into the schools, health fairs, and medical conventions.

After 20 years as medical director, Ho recruited recently retired Dr Rea Chittenden, who had previously been involved in the Los Angeles Poison Center. By then the Children's Hospital had moved to its present Punahou Street location via the merger with Kapiolani Maternity and Gynecological Hospital. Chittenden, as medical

director, was supported by the first administrative director, Margaret Lezereti, a nurse. Following Dr Chittenden's death, Dr Gwen Naguwa became the medical director. (Phone interview, Jane Kagihara, RN, 11/21/97.)

In 1974, Jane Kagihara, RN succeeded Lezereti. The advent of state funding via grant-in-aids had made possible 24 hour dedicated staffing by trained nurses. Throughout her thirteen year tenure Kagihara lobbied the legislature to stabilize state funding, applied for corporate grants, implemented the certification of the center's staffing, and ultimately opened the lines of the center to the general public, as many of the key centers on the mainland were doing. By 1979, the center was fielding nearly 7000 calls per year. (1984 Annual Report.)

In September 1980, the center installed a toll-free line to the Neighbor Islands, as only 3% of the calls came from Maui, Kauai, and Hawaii Counties. As a result, call volume jumped by 24%. And by 1983, neighbor island calls climbed to approximately 15% of calls. (1984 Annual Report.) Because of the growth in call volume as well as more extensive toxicology information available, the center computerized its documentation and clinical databases to improve services. (Kagihara)

The Hawaii Poison Center's history closely parallels the trends of mainland poison centers. In the decades of the sixties and seventies, heralded by pediatric groups, public health agencies, hospitals and community organizations, financial support and the number of centers in the US grew steadily to a peak of 661 in 1978.² Based typically in emergency rooms or hospital pharmacies, the centers were staffed by medical personnel with no special training or expertise in toxicology and limited information resources. By the late 1970s, with financial assistance from the Emergency Medical

Table 1.—Historial Timeline for Poison Services

1950	American Academy of Pediatrics forms Committee on Accident Prevention, leading to identification of poisoning as a key public health issue.
1953	Chicago Poison Control Center opens.
1956	National Clearinghouse for Poison Control Centers established.
1957	Hawaii Poison Control Center established.
1970	Poison Prevention Packaging Act passed by Congress.
1973	Emergency Medical Services Act passed by Congress
1978	Peak number of 661 centers reached nationwide, 100% coverage of U.S. population achieved.
1980s	Decline in centers begins due to regionalization and funding pressures.
1994	Congressional hearings held on the financial plight of poison control centers.
1995	Hawaii Poison Center loses state funding.
1997	Health and Human Services report to Congress regarding federal assistance to stabilize poison centers.

Services Systems Act of 1973, efforts to improve the quality of poison control services in the US were underway. These efforts led to the development of national standards for poison centers and a certification process to assure compliance to these standards. By 1978, when the number of centers peaked, nearly 100% coverage of the US population had been achieved.²

In the 1980s, a trend toward regionalization resulted in a rapid decline in the number of poison centers, as small local centers combined to serve larger geographic areas, generally leading to improved quality, better economies of scale, and increased call volume. By 1983, the number of US poison control centers had dropped to 395.² In 1994, when Congressional hearings commenced 87 centers remain.³ The trend toward regionalization also meant that benefits were provided to a wider community—extending well beyond the revenue base of the sponsoring institutions.

Critical Condition of Poison Services Today

In March 1994, Congressional hearings were held to discuss the plight of PCCs.³ Economic pressures and escalation of health care costs had destabilized centers such that only 87 still survived in 1994. The largely voluntary and private funding arrangements of poison control centers was unstable, and centers needed to deal with multiple funders and donors, none of whom felt indispensable. And in a managed care environment in which purchasers of health care services now aggressively seek the lowest price for care, hospitals and academic medical centers, the traditional sites for PCCs, must keep costs low to compete, a feat particularly difficult for teaching hospitals.³

In follow-up to the Congressional Hearings, the Secretary of Health and Human Services was asked to report back to Congress on mechanisms for stabilizing poison center services in the United States.² The first report, by the Poison Control Center Advisory Work Group of the Centers for Disease Control and MCH/Health Resources and Services Administration, recommends immediate federal assistance, six fundamental initiatives essential to a redesigned poison control system that maximizes economies of scale, under oversight of the Department of Health and Human Services, and use of a Robert Wood Johnson study to redesign the US poison control system.² Whether Congress will act in response to the crisis of funding and fragmentation of the system remains to be seen.

In Hawaii, similar economic pressures resulted in state government defunding of its Center at the end of 1995. Kapiolani Medical Center for Women and Children, a tertiary teaching facility, continues to underwrite the program today, with financial support from other major medical centers and health corporations throughout the state, such as Kaiser Permanente, and other corporate donors. A community advisory board, composed of health care professionals, business executives, and consumers, was formed to guide the center in its mission of service and education, and assist with fundraising.

The threatened closure, however, resulted in a significant drop in calls from 13,505 in fiscal 1995 to 11,849, over 12%, in the following year. This reflects a penetrance level of slightly more than 9 calls per 1000 population, versus the recommended 15 calls per thousand benchmarked against longstanding certified poison control centers with well established community education and outreach programs.² Fearful that the decline in calls may increase the level of harm from exposures and increase overall health care costs, especially those stemming from emergency room visits for exposures which could be managed at home, the Hawaii Poison Center will redouble public awareness and education efforts for its yearlong fortieth anniversary celebration. At the same time, the Center will also increase fundraising efforts to address immediate financial shortfalls, as well as long term fund development.

Summary

In this era of health care reform, as harm reduction, prevention, and other public health strategies become ever more important, the Hawaii Poison Center continues to play a significant role in improving the quality of health and reducing health care costs for Hawaii. Patterned after centers on the mainland, the center's history parallels mainland trends in poison management services. After 45 years of service, the key issue facing centers today is survival, as the funding for centers erodes and become ever more fragmented and vulnerable to economic pressures.

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